

REMARKS

I. General Comments

Applicant thanks the Examiner for indicating acceptance of the drawings filed on August 9, 2006. Applicant also thanks the Examiner for acknowledging Applicant's claim for foreign priority and receipt of the certified copy of the priority document from the International Bureau. In addition, Applicant thanks the Examiner for considering the references listed on the PTO/SB/08 Form submitted with the Information Disclosure Statement of August 9, 2006.

II. Status of the Application

By the present Amendment, Applicant is amending claims 1, 3, 20, 21, and 24. Further, Applicant is adding new claims 25 and 26 in order to more fully to cover various aspects of the invention as disclosed in the specification. No new matter is added.

Claims 1-26 are all the claims pending in the present application. Claims 1-24 have been rejected. The present Amendment addresses each point of rejection raised by the Examiner. Favorable reconsideration is respectfully requested.

III. Claim Rejections Under 35 U.S.C. § 102(b)

Furukawa

Claims 1, 3, 5-13, 15-18, and 21-24 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by JP 05-249320 to Furukawa et al. (hereinafter "Furukawa"). Applicant respectfully traverses this ground of rejection.

Independent claim 1 recites, *inter alia*, a transparent light guide plate in which "an end portion of said parallel groove is narrowed toward said rectangular light exit surface symmetrically with respect to a center line of said parallel groove perpendicular to said rectangular light exit surface in a sectional shape of said parallel groove in said direction

perpendicular to said rectangular light exit surface, in accordance with a ratio of a peak value of illuminance or luminance of emitted light from said bar-like light source accommodated in said parallel groove at a first portion of said rectangular light exit surface corresponding to said parallel groove to an average value of said illuminance or luminance of said emitted light at second portions corresponding to said inclined rear portions.” The Examiner maintains that Fig. 5 of Furukawa discloses the quoted feature of claim 1. Applicant respectfully disagrees.

Furukawa is directed to an optical waveguide device for surface illumination. As shown in Figs. 1-5, the optical waveguide device includes a low refractive index layer 4 and a plurality of tabular lightguides 5a, 5b, 5c, 5d, 5e, and 5f (¶ [0027]). The first tabular lightguide 5a has the lowest index of refraction N1, and the remaining tabular lightguides 5b, 5c, 5d, 5e, and 5f have successively higher indices of refraction N2, N3, N4, N5, and NK, respectively (¶ [0029]). Furukawa uses the tabular lightguides 5a, 5b, 5c, 5d, 5e, and 5f with increasing indices of refraction to achieve a uniform brightness at the surface of the optical waveguide device (¶ [0021] – [0022], [0047]). As shown in Figs. 1, 2, and 5, there may be a triangular-shaped dead air space for light sources 8 through the tabular lightguides 5a, 5b, 5c, 5d, 5e, and 5f. Alternatively, the dead air space for light sources 8 may be concave (Fig. 3) or circular (Fig. 4).

However, Furukawa does not teach or suggest that the dead air space for light sources 8 is narrowed based on a ratio of a peak value of illuminance or luminance of the emitted light at a first portion of the rectangular light exit surface corresponding to the dead air space for light sources 8 to an average value of the illuminance or luminance of the emitted light at second portions of the rectangular light exit surface corresponding to the inclined rear portions of the transparent light guide plate, as recited in claim 1. Instead, as discussed above, Furukawa uses the tabular lightguides 5a, 5b, 5c, 5d, 5e, and 5f with increasing indices of refraction to achieve a

uniform brightness at the surface of the optical waveguide device (¶¶ [0021] – [0022], [0047]).

Furukawa is silent with regard to the effect of the shape of the dead air space for light sources 8 on the uniformity of light emitted from the optical waveguide device.

In order to expedite prosecution, Applicant is amending claim 1 to recite that “said light guide plate is formed of a single material with a uniform index of refraction.” On the contrary, Furukawa requires the tabular lightguides 5a, 5b, 5c, 5d, 5e, and 5f with increasing indices of refraction to achieve a uniform brightness at the surface of the optical waveguide device.

Applicant submits that claim 1 distinguishes over Furukawa at least by virtue of the aforementioned differences, as well as its additionally recited features. Because independent claims 3, 21, and 24 recite features similar to those discussed above with regard to claim 1, Applicant submits that claims 3, 21, and 24 distinguish over Furukawa for similar reasons. Further, claims 5-13, 15-18, 22, and 23 are patentable over Furukawa at least by virtue of their respective dependencies on claims 1 and 21, as well as their additionally recited features.

With further regard to dependent claim 13, the Examiner maintains that “the bottom portion of the sectional shape at the top of the end portion of the parallel groove is parallel with the optical diffusion layer 3.” However, dependent claim 13 recites “said sectional shape at said top of said end portion of said parallel groove has a portion parallel with said rectangular light exit surface where said intersection as the peak is chamfered” (emphasis added). On the contrary, Figs. 1-5 of Furukawa show that the crowning 8a of the groove is a sharp point, and does not have a flat portion that is parallel to the light diffusion layer 3.

Kunishige

Claims 20 and 24 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by JP 11-149073 to Kunishige. Applicant respectfully traverses this ground of rejection.

Independent claim 20 recites, *inter alia*, a light guide plate formed from two or more light guide plates, wherein the two or more light guide plates are connected with each other at the thin edge portions thereof. The Examiner maintains that Fig. 2 of Kunishige discloses this feature of claim 20. Applicant respectfully disagrees.

Kunishige is directed to a surface light source device and a liquid crystal display device. Figs. 1 and 2 of Kunishige show that the light transmission plates 4 and 5 are not connected with each other, as recited in claim 20. Instead, there is a gap between the light transmission plates 4 and 5, and the light source 3 is positioned within the gap (¶ [0027]). Further, as shown in Fig. 1, the thin edges of the light transmission plates 4 and 5 are positioned at opposite ends of the light source device (at the far left and the far right, respectively). Therefore, the light transmission plates 4 and 5 cannot be connected with each other at the thin edge portions thereof, as recited in claim 20. Accordingly, Applicant submits that claim 20 distinguishes over Kunishige at least by virtue of the aforementioned differences, as well as its additionally recited features.

Independent claim 24 recites a liquid crystal display device comprising, *inter alia*, a light guide plate comprising “a parallel groove which accommodates a bar-like light source and is formed at substantially a center of said thick portion in parallel with said opposing two sides ... wherein an end portion of said parallel groove is narrowed toward said rectangular light exit surface symmetrically with respect to a center line of said parallel groove perpendicular to said rectangular light exit surface in a sectional shape of said parallel groove in said direction perpendicular to said rectangular light exit surface” and “a bar-like light source accommodated in said parallel groove of said light guide plate.” The Examiner maintains that Fig. 2 shows the claimed parallel groove, and that the light source 3 is accommodated in the parallel groove. Applicant respectfully disagrees.

As discussed above, Fig. 1 of Kunishige shows that there is a gap between the light transmission plates 4 and 5, and that the light source 3 is positioned within the gap (¶ [0027]). However, the gap has a rectangular shape, and does not have an end portion that is narrowed symmetrically toward the rectangular light exit surface, as recited in claim 24. Although the reflection plate 7 has a V groove, the reflection plate 7 is not part of the light transmission plates 4 and 5, and the light source 3 is not accommodated in the V groove. Therefore, Applicant submits that claim 24 distinguishes over Kunishige at least by virtue of the aforementioned differences, as well as its additionally recited features.

IV. Claim Rejections Under 35 U.S.C. § 103(a)

Claims 2, 4, and 21 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Furukawa in view of Kunishige. Claim 14 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Furukawa. Claim 19 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Furukawa in view of U.S. Publication No. 2003/0210210 to Ide et al. (hereinafter “Ide”). Claim 22 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Furukawa in view of U.S. Patent No. 5,402,324 to Yokoyama et al. (hereinafter “Yokoyama”). Applicant respectfully traverses these grounds of rejection.

As discussed above, Furukawa fails to teach or suggest a transparent light guide plate in which “an end portion of said parallel groove is narrowed toward said rectangular light exit surface symmetrically with respect to a center line of said parallel groove perpendicular to said rectangular light exit surface in a sectional shape of said parallel groove in said direction perpendicular to said rectangular light exit surface, in accordance with a ratio of a peak value of illuminance or luminance of emitted light from said bar-like light source accommodated in said

parallel groove at a first portion of said rectangular light exit surface corresponding to said parallel groove to an average value of said illuminance or luminance of said emitted light at second portions corresponding to said inclined rear portions, and said light guide plate is formed of a single material with a uniform index of refraction," as recited in claims 2, 4, 14, 19, 21, and 22. Further, Kunishige, Ide, and Yokoyama fail to remedy this deficiency in Furukawa. Therefore, Applicant submits that claims 2, 4, 14, 19, 21, and 22 are patentable over Furukawa, Kunishige, Ide, and Yokoyama at least by virtue of the aforementioned differences, as well as their additionally recited features.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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